

## PATENT ABSTRACTS OF JAPAN

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**(54) ROOM-TEMPERATURE-CURABLE COMPOSITION****(57)Abstract:**

**PROBLEM TO BE SOLVED:** To provide a room-temperature-curable composition which can give a cured product having a surface being stained little even after a long term without using any surface protecting agent and is suited for obtaining a cured product such as a sealing material exhibiting excellent properties.

**SOLUTION:** This composition contains 100 pts.wt. polyether polymer having a main chain consisting essentially of a polyether having a crosslinkable hydrolyzable silyl group at least one terminal and having a number-average molecular weight of 4,000-30,000; 0.1-20 pts.wt. amine compound having at least two amino groups in the molecule and having a melting point of 10-200° C or polyglycerol fatty acid ester having a degree of polymerization of 2-5; and a silanol condensation catalyst.

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CLAIMS

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[Claim(s)]

[Claim 1] The room-temperature-curing nature constituent which a principal chain is a polyether intrinsically, has the hydrolysis nature silyl radical which can construct a bridge over at least one end, has two or more amino groups in a monad to the polyether system polymer 100 weight section whose number average molecular weight is 4000-30000, and is characterized by the amine compound 0.1 - 20 weight sections, and the silanol condensation catalyst whose melting point is 10-200 degrees C come to contain.

[Claim 2] The room-temperature-curing nature constituent which a principal chain is a polyether intrinsically, has the hydrolysis nature silyl radical which can construct a bridge over at least one end, and is characterized by the fatty acid ester 0.1 - 20 weight sections, and the silanol condensation catalyst of polyglycerin whose polymerization degree is 2-5 coming to contain to the polyether system polymer 100 weight section whose number average molecular weight is 4000-30000.

[Claim 3] The room-temperature-curing nature constituent which a principal chain is a polyether intrinsically, has the hydrolysis nature silyl radical which can construct a bridge over at least one end, and is characterized by the nonionic surfactant 0.1 - 20 weight sections, and the silanol condensation catalyst whose melting point is 10-200 degrees C coming to contain to the polyether system polymer 100 weight section whose number average molecular weight is 4000-30000.

[Claim 4] The polyether system polymer whose principal chain is a polyether intrinsically and whose number average molecular weight it has the hydrolysis nature silyl radical which can construct a bridge over at least one end, and is 4000-30000, A principal chain is an acrylic ester copolymer intrinsically (meta), and it has at least one silyl radical of the hydrolysis nature which can construct a bridge. As opposed to the total quantity 100 weight section with the acrylic ester system polymer whose number average molecular weight is 6000-30000 (meta) The room-temperature-curing nature constituent characterized by the nonionic surfactant 0.1 - 20 weight sections, and the silanol condensation catalyst whose melting point is 10-200 degrees C coming to contain.

[Claim 5] The room-temperature-curing nature constituent which a principal chain is a polyether intrinsically, has the hydrolysis nature silyl radical which can construct a bridge over at least one end, and is characterized by the nonionic surfactant 0.1 whose melting point is 10-200 degrees C - 20 weight sections, the bulking agent 2 which is the mean particle diameter of 10-80 micrometers - 30 weight sections, and a silanol condensation catalyst coming to contain to the polyether system polymer 100 weight section whose number average molecular weight is 4000-30000.

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates mainly to a room-temperature-curing nature constituent suitable as a sealing material etc.

[0002]

[Description of the Prior Art] Conventionally, the polymer which reacts with the moisture in atmospheric air, hardens, and is elastomerized is widely used as a sealing material, adhesives ("it is described as a sealing material etc." only hereafter), etc. As a sealing material using such a moisture hardening mold polymer, "the room-temperature-curing nature seal agent (sealing material) constituent which contains the new polyether whose principal chain have the silyl ether group shown by the specific general formula at least one end, and is a propylene oxide polymer intrinsically, and whose molecular weight is 6300-15000 as an active principle" is proposed by JP.61-18582.B.

[0003] However, when it uses for the joint of for example, a building outer wall etc., the front face is polluted with dust, exhaust gas, etc. with time amount progress (passage of time) by the sealing material which uses as a principal component a polyether which is in the above-mentioned proposal, and there is an exterior big trouble of becoming unsightly in him.

[0004] Since it corresponds to the above-mentioned trouble, in JP.60-8024.B, "the hardenability constituent containing the polymer plasticizer 1 chosen from the group which molecular weight becomes from the polyester, the polyether, the polystyrene, the Poly alpha methyl styrene, the polybutadiene, the alkyl resin, the polychloroprene, and Butadiene Acrylonitrile of 300-15000 to the organic polymer 100 weight section of molecular weight 300-15000 which has one hydrolysis nature silicon radical even if few per polymer 1 molecule - the 150 weight sections" is proposed.

[0005] However, as for the prevention effectiveness, such as sedimentation and a slump (sappet), the hardenability constituent by the above-mentioned proposal which made the polymer plasticizer contain instead of the usual low-molecular plasticizer does not have sufficient pollution-control effectiveness of a certain thing, either, and in order to prevent contamination by the passage of time of front faces, such as a sealing material, coating of the surface protective agents, such as a coating agent and a coating, is carried out to front faces, such as a sealing material, and the approach of protecting front faces, such as a sealing material, is taken after all in many cases.

[0006] However, while a routing becomes complicated in the case of the approach of carrying out coating of the above-mentioned surface protective agent, it becomes cost high and the trouble that contamination with time occurs on front faces, such as said sealing material, is not solved radically.

[0007]

[Problem(s) to be Solved by the Invention] This invention has generating [little] contamination with time on a hardened material front face, without using a surface protective agent, in order to solve the above-mentioned conventional trouble, and after hardening makes it a technical problem to offer the room-temperature-curing nature constituent suitable for obtaining the

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used independently, and two or more kinds may be used together.

[0018] Especially as a fatty acid used for the above-mentioned fatty acid ester, although not limited, the saturation or the unsaturated fatty acid of carbon numbers 10-20 is mentioned, and it is used suitably, for example.

[0019] When compatibility with the polyether system polymer of the fatty acid ester which will be obtained if the carbon number of the above-mentioned fatty acid is less than ten may become scarce and the carbon number of a fatty acid exceeds 20 conversely, the amount of [of front faces, such as a sealing material using the room-temperature-curing nature constituent obtained, 1] liquefied matter may increase, and a front face may become in the contrary easy to be polluted.

[0020] Although the above-mentioned carbon number is not limited especially as an example of the fatty acid of 10-20, unsaturated fatty acid, such as saturated fatty acid, such as lauric acid, a myristic acid, a palmitic acid, stearic acid, and arachidic acid, oleic acid, linolic acid, a linolenic acid, an erucic acid, and a stearyl acid, etc. is mentioned, and it is used suitably, for example. The above-mentioned fatty acid may be used independently and two or more kinds may be used together.

[0021] Although especially whenever [esterification / of the fatty acid ester obtained from the polyglycerin whose polymerization degree is 2-5, and a fatty acid] is not limited, it is desirable that they are monoester or diester.

[0022] When whenever [esterification / of fatty acid ester] is more than triester, the number of the residual hydroxyl groups in the room-temperature-curing nature constituent obtained may decrease, a hydrophilic property may fall, and the surface contamination prevention effectiveness, such as a sealing material, may become inadequate.

[0023] Although polymerization degree is not limited especially as an example of the fatty acid ester of the polyglycerin which is 2-5, diglycerol laurate, diglycerol stearate, diglycerol olate, a diglycerol KAPURI rate, diglycerol mono-laurate, diglycerol monostearate, diglycerol mono-olate, tetra-glycerol stearate, tetra-glycerol olate, etc. are mentioned, and it is used suitably, for example. The above-mentioned fatty acid ester may be used independently, and two or more kinds may be used together.

[0024] If the content of the above-mentioned fatty acid ester to the polyether system polymer 100 weight section is under the 0.1 weight section If the hydrophilic property of the room-temperature-curing nature constituent obtained falls, the surface contamination prevention effectiveness, such as a sealing material, cannot fully be acquired and the content of the fatty acid ester to the polyether system polymer 100 weight section exceeds 20 weight sections conversely Although effectiveness suitable for an addition is not expectable, there is a possibility of having an adverse effect on a sealing material's etc. physical properties.

[0025] Moreover, it is characterized by a principal chain being a polyether intrinsically, the room-temperature-curing nature constituent of invention (it is hereafter described as "the 3rd invention") according to claim 3 having the hydrolysis nature silyl radical which can construct a bridge over at least one end, and the nonionic surfactant 0.1 - 20 weight sections, and the silanol condensation catalyst whose melting point is 10-200 degrees C coming to contain it to the polyether system polymer 100 weight section whose number average molecular weight is 4000-30000. The nonionic surfactant (it is only hereafter described as a "nonionic surfactant") 0.1 - 20 weight sections, and the silanol condensation catalyst whose melting point is 10-200 degrees C come to contain the room-temperature-curing nature constituent of the 3rd invention to the polyether system polymer 100 weight section mentioned above.

[0026] Since it is hard coming to mix with the above-mentioned polyether system polymer and melting or a lot of solvents in an elevated temperature are needed when the thing on the front face of a hardened material for which antirouting property is held in the long run while oozing, and \*\* becoming intense and polluting a base material and a paint film will become difficult if it becomes low, and it becomes high, the melting point of the above-mentioned nonionic surfactant is limited to 10-200 degrees C, and it is 20-140 degrees C preferably.

[0027] As a nonionic surfactant whose above-mentioned melting point is 10-200 degrees C, nonionic surfactants [such as glycerine fatty acid ester system surface-active-agent:

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sealing material which demonstrates the outstanding physical properties.

[0008]

[Means for Solving the Problem] The room-temperature-curing nature constituent of invention (it is hereafter described as "the 1st invention") according to claim 1 A principal chain is a polyether intrinsically and it has the hydrolysis nature silyl radical which can construct a bridge over at least one end. To the polyether system polymer 100 weight section whose number average molecular weight is 4000-30000, it has two or more amino groups in a monad, and is characterized by the amine compound 0.1 - 20 weight sections, and the silanol condensation catalyst whose melting point is 10-200 degrees C coming to contain.

[0009] To the polyether system polymer 100 weight section mentioned above, the room-temperature-curing nature constituent of the 1st invention has two or more amino groups in a monad, 10-200 degrees C of 20-140 degrees C of melting points come out preferably, and a certain amine compound (it is only hereafter described as an "amine compound") 0.1 - 20 weight sections, and a silanol condensation catalyst come to contain it.

[0010] When the number of the amino groups which the above-mentioned amine compound has is less than two in a monad, the number of the residual amino groups in the room-temperature-curing nature constituent obtained may decrease, a hydrophilic property may fall, and the surface contamination prevention effectiveness, such as a sealing material, may become inadequate.

[0011] Moreover, become easy to carry out bleed out on the front face of hardened materials, such as a sealing material, to the melting point of the above-mentioned amine compound being less than 10 degrees C. If it becomes easy to cause surface contamination, such as a sealing material, the contamination to adherent, etc. and the melting point of the above-mentioned amine compound exceeds 200 degrees C conversely Mixing with a polyether system polymer will need to become difficult, will need to take mixing methods, such as melting by heating at high temperature, and the dissolution by a lot of organic solvents, and is not desirable in respect of a process and the engine performance etc.

[0012] Although it has two or more amino groups in a up Norikazu molecule and is not limited especially as an example of an amine compound in which the melting point is 10-200 degrees C, CH317(CH2)3 NH(CH2)3 NH2 (melting point of 48 degrees C), m-phenylenediamine (melting point of 83 degrees C), etc. are mentioned, and it is used suitably, for example. The above-mentioned amine compound may be used independently and two or more kinds may be used together.

[0013] If the content of the above-mentioned amine compound to the polyether system polymer 100 weight section is under the 0.1 weight section If the hydrophilic property of the room-temperature-curing nature constituent obtained falls, the surface contamination prevention effectiveness, such as a sealing material, cannot fully be acquired and the content of the above-mentioned amine compound to the polyether system polymer 100 weight section exceeds 20 weight sections conversely Although effectiveness suitable for a content is not expectable, there is a possibility of having an adverse effect on a sealing material's etc. physical properties.

[0014] Moreover, it is characterized by a principal chain being a polyether intrinsically, the room-temperature-curing nature constituent of invention (it is hereafter described as "the 2nd invention") according to claim 2 having the hydrolysis nature silyl radical which can construct a bridge over at least one end, and the fatty acid ester 0.1 - 20 weight sections, and the silanol condensation catalyst of polyglycerin whose polymerization degree is 2-5 coming to contain it to the polyether system polymer 100 weight section whose number average molecular weight is 4000-30000.

[0015] The fatty acid ester (it is only hereafter described as "fatty acid ester") 0.1 - 20 weight sections, and the silanol condensation catalyst of polyglycerin whose polymerization degree is 2-5 come to contain the room-temperature-curing nature constituent of the 2nd invention to the polyether system polymer 100 weight section mentioned above.

[0016] When the polymerization degree of the polyglycerin used for the above-mentioned fatty acid ester exceeds 8, in spite of becoming cost high, the surface contamination prevention effectiveness of having balanced cost is not acquired, but it is lacking in practicality.

[0017] Moreover, the polyglycerin whose above-mentioned polymerization degree is 2-5 may be

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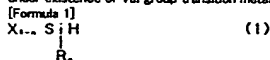
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polyoxyethylene alkylamine (melting point: 30 degrees C), 1, such as sorbitan fatty acid ester system surface-active-agent; glycerol monostearate (melting point: 65 degrees C), such as sorbitan stearate (melting point: 60 degrees C) and sorbitan palmitate (melting point: 55 degrees C), and diglycerol stearate (melting point: 70 degrees C), are mentioned, for example. The above-mentioned nonionic surfactant may be used independently and may be used together two or more sorts.

[0028] Furthermore, the room-temperature-curing nature constituent (henceforth "the 4th invention") of the 4th invention The polyether system polymer mentioned above and a principal chain are acrylic ester copolymers intrinsically (meta). It has at least one silyl radical of the hydrolysis nature which can construct a bridge, and the nonionic surfactant 0.1 whose melting point is 10-200 degrees C - 20 weight sections come to contain to the total quantity 100 weight section with the acrylic ester system polymer whose number average molecular weight is 6000-30000 (meta).

[0029] The above-mentioned principal chain is an acrylic ester copolymer intrinsically (meta), and it is the polymer obtained, for example by the approach of following (1) - (4) as a polymer (henceforth an "acrylic ester (meta) system polymer") which has at least one silyl radical of the hydrolysis nature which can construct a bridge.

(1) The approach to which the acrylic ester system copolymer which has an silyl group (meta) is made to react with the silicon hydride compound expressed with the following general formula (1) under existence of VII group transition metals (JP.54-38395.A).



(X shows a halogen atom, an alkoxy group, an acyloxy radical, or a KETOXKISHI mate radical among a formula, R shows a monovalent hydrocarbon radical or a halogenation monovalent hydrocarbon radical, and n shows the integer of 0, 1, or 2)

(2) (meta) How to carry out copolymerization under existence of the acrylic ester (meta) which contains an alkoxy silyl radical for acrylic ester, and the chain transfer agent containing a silylhydride group (JP.57-179210.A).

(3) (meta) How to carry out copolymerization under existence of the mercaptan which contains an alkoxy silyl radical by making acrylic ester into 2 organic-functions radical polymerization object compound and a chain transfer agent (JP.59-782220.A).

(4) (meta) How to carry out a polymerization using the azobis 2 tolyl compound which contains an alkoxy silyl radical by making acrylic ester into a polymerization initiator (JP.60-23405.A).

[0030] In addition, acrylic ester here (meta) is acrylic-acid alkyl ester or methacrylic acid alkyl ester.

[0031] The polymer with which the carbon number of the alkyl acid alkyl ester of the carbon numbers 1-12 of an alkyl group and an alkyl group uses as a principal component the polymer with which a principal chain consists of methacrylic acid alkyl ester of 1-14 also in the above-mentioned (meta) acrylic ester system polymer is desirable. Moreover, as a silyl radical of the hydrolysis nature which can construct a bridge, since alkoxy silyl radicals, such as a methoxy silyl radical and an ethoxy silyl radical, do not generate a harmful by-product after a reaction, they are desirable. (Meta) As number average molecular weight of an acrylic ester system polymer, it is limited to 6000-30000. When the tack nature (stickiness) of a hardened material becomes it large that number average molecular weight is less than 6000 too much and number average molecular weight exceeds 30000, compatibility with a polyether system polymer falls and the weatherproof improvement effectiveness becomes less enough.

[0032] The rate which carries out 0.1-100 weight section mixing of the acrylic ester (meta) system polymer to the polyether system polymer 100 weight section as a mixed rate of a polyether system polymer and an acrylic ester (meta) system polymer is desirable. If a polymer (B) does not fulfill the 0.1 weight section, the effectiveness of weatherproof improvement will become small, and if the 100 weight sections are exceeded, hardenability and the elongation of a

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hardened material will become low. It is 0.5 - 80 weight section more preferably.

[0033] In the room-temperature-curing nature constituent of the 1st invention thru/ or the 4th invention, one sort of the flattening agent for frosting the hardened material front face of a room-temperature-curing nature constituent if needed in the range which does not check technical problem achievement of this invention in addition to the indispensable component mentioned above, or two sorts or more may contain. Although not limited, especially as the above-mentioned flattening agent, for example A glass bead, A silica bead, an alumina bead, a carbon bead, a styrene bead, A phenol bead, an acrylic bead, a porosity silica, milt bakun, organic [with a mean particle diameter of about 10-80 micrometers] or the inorganic flattening agent of glass bakun, silica bakun, vinylidene-chloride bakun, acrylic bakun, etc. mentions -- having -- these one sort -- or, although two or more sorts are used suitably Glass bakun with reducing [little] the extensibility of the hardened material of a room-temperature-curing nature constituent especially is used more suitably.

[0034] The room-temperature-curing nature constituent of invention (henceforth "the 5th invention") according to claim 5 A principal chain is a polyether intrinsically and it has the hydrolysis nature silyl radical which can construct a bridge over at least one end. The flattening agent 2 which is the nonionic surfactant 0.1 - 20 weight sections, and mean particle diameter of 10-80 micrometers whose melting point is 10-200 degrees C - 30 weight sections come to contain to the polyether system polymer 100 weight section whose number average molecular weight is 4000-30000.

[0035] Although not limited, especially as the above-mentioned flattening agent, for example A glass bead, A silica bead, an alumina bead, a carbon bead, a styrene bead, A phenol bead, an acrylic bead, a porosity silica, milt bakun, organic [with a mean particle diameter of about 10-80 micrometers] or the inorganic flattening agent of glass bakun, silica bakun, vinylidene-chloride bakun, acrylic bakun, etc. mentions -- having -- these one sort -- or, although two or more sorts are used suitably Glass bakun with reducing [little] the extensibility of the hardened material of a room-temperature-curing nature constituent especially is used more suitably.

[0036] The above-mentioned mean particle diameter must be 10 micrometers - 80 micrometers. Sufficient lusterless effectiveness is not acquired with mean particle diameter being less than 10 micrometers, but if mean particle diameter exceeds 80 micrometers, the elongation after a room-temperature-curing nature constituent hardens will become small. 2-30 weight section content of the flattening agent must be carried out to the polyether system polymer 100 weight section. Unless a flattening agent fulfills 2 weight sections, sufficient lusterless effectiveness is not acquired, but if 30 weight sections are exceeded, the elongation after a room-temperature-curing nature constituent hardens will become small.

[0037] A principal chain is a polyether intrinsically, and the room-temperature-curing nature constituent by the 1st invention thru/ or the 5th invention has the hydrolysis nature silyl radical which can construct a bridge over at least one end, and contains the polyether system polymer (it is only hereafter described as "polyether system polymer") whose number average molecular weight is 4000-30000. In addition, a polyether system polymer constitutes a principal component from a room-temperature-curing nature constituent by the 1st invention thru/ or the 3rd invention, and the 5th invention.

[0038] Although especially the polyether system polymer of the 1st invention thru/ or the 5th invention is not limited, it is a polymer obtained by, for example, making the polyoxyalkylene which has an silyl group react to an end under existence of VIII group transition metals with the silicon hydride compound expressed by the following general formula (2).



(X shows a halogen atom, an alkoxy group, an acyloxy radical, or a KETOXISHI mate radical among a formula, R shows a monovalent hydrocarbon radical or a halogenation monovalent

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condensation catalyst over the polyether system polymer 100 weight section is under the 0.1 weight section, and the content of the silanol condensation catalyst over the polyether system polymer 100 weight section exceeds 5 weight sections conversely, although a hardening facilitatory effect does not improve, it will already serve as the cost high.

[0049] In the room-temperature-curing nature constituent by the 1st invention thru/ or the 5th invention, one sort of various additives, such as the physical-properties regulator for raising tension physical properties etc. if needed in the range which does not check technical problem achievement of this invention in addition to the indispensable component mentioned above, a dehydrating agent, an inorganic bulking agent, a plasticizer (softener), a coloring agent, an antioxidant, an ultraviolet ray absorbent, a flame retarder, and toluene, an organic solvent like alcohol, or two sorts or more may contain.

[0050] especially as the above-mentioned physical-properties regulator, although not limited, various silane coupling agents, such as epoxy silanes [such as mercapto silanes; gamma-glycidyloxypropyltrimethoxysilane, ], such as amino silanes; gamma-mercaptopropyltrimethoxysilane, such as gamma-(2-aminoethyl) aminopropyl trimethoxysilane and gamma-aminopropyl triethoxysilane, mention, for example -- having -- these one sort -- or two or more sorts are used suitably.

[0051] moreover, especially as the above-mentioned dehydrating agent, although not limited, vinylsilane, such as vinyltrimethoxysilane, mentions, for example -- having -- these one sort -- or two or more sorts are used suitably.

[0052] As for said polyether system polymer used in the room-temperature-curing nature constituent of the 1st invention thru/ or the 5th invention, a hardening reaction advances with moisture. Therefore, in order to prevent that a room-temperature-curing nature constituent thickens or gels during storage with the minute amount moisture in a room-temperature-curing nature constituent, it is desirable to make the above-mentioned dehydrating agent 1 - 5 weight sections contain to the polyether system polymer 100 weight section.

[0053] especially as the above-mentioned inorganic bulking agent, although not limited, a calcium carbonate, a magnesium carbonate, water silicic acid, a silicic anhydride, a calcium silicate, a silica, clay, talc, etc. mention, for example -- having -- these one sort -- or two or more sorts are used suitably.

[0054] especially as the above-mentioned plasticizer (softener), although not limited, glycols [such as a fatty-acid dibasic-acid-esters; polypropylene glycol, ], such as fatty-acid monobasic-acid ester; adipic-acid dibutyls, such as phthalic ester; glycerol mono-oleate, such as phosphoric ester; dibutyl phthalate, such as tributyl phosphate and phosphoric acid TORIKUREJIRU, and phthalic-acid 2-ethylhexyl, and dioctyl adipate, mention, for example -- having -- these one sort -- or two or more sorts are used suitably.

[0055] especially as the above-mentioned coloring agent, although not limited, carbon black, titanium oxide, rouge, etc. mention, for example -- having -- these one sort -- or two or more sorts are used suitably.

[0056] especially as the above-mentioned antioxidant, although not limited, a hindered amine system antioxidant, a hindered phenolic antioxidant, etc. mention, for example -- having -- these one sort -- or two or more sorts are used suitably.

[0057] After the manufacture approach of the room-temperature-curing nature constituent the 1st invention thru/ or the 5th invention is not special, it carries out weighing capacity of each component of the specified quantity and mixers, such as a mixer and a kneader, perform preliminary mixing, ordinary temperature dehydration or heating dehydration can be performed under reduced pressure, and, subsequently a desired room-temperature-curing nature constituent can be obtained by kneading to homogeneity for example, using 3 rolls etc.

[0058] The principal chain of the room-temperature-curing nature constituent of the 1st invention is a polyether intrinsically. (Operation) Have the hydrolysis nature silyl radical which can construct a bridge over at least one end, and the polyether system polymer which has number average molecular weight in the specific range is used as a principal component. It has two or more amino groups in a monad, and since it comes to contain the amount of specification of the amine compound which has the melting point in the specific range, while a hardened

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hydrocarbon radical, and n shows the integer of 0, 1, or 2)

[0040] especially as polyoxyalkylene which constitutes the principal chain of the above-mentioned polyether system polymer, although not limited, a polyoxyethylene, polyoxypropylene, a polyoxybutylene, etc. mention, for example -- having -- these one sort -- or two or more sorts are used suitably. The polyoxypropylene which is excellent in the elasticity when using the room-temperature-curing nature constituent obtained as a sealing material etc. especially, a water resisting property, etc. is used more suitably.

[0041] Although not limited, since alkoxy silyl radicals, such as a methoxy silyl radical and an ethoxy silyl radical, are mentioned for example, and these do not generate a by-product harmful to hardening reaction time especially as a hydrolysis nature silyl radical which is contained at least one end of the above-mentioned polyether system polymer and for which a bridge can be constructed, it is used suitably.

[0042] Moreover, the above-mentioned polyether system polymer requires that the number average molecular weight should be 4000-30000. If number average molecular weight becomes inadequate [the extensibility of the hardened material of the room-temperature-curing nature constituent obtained as it is less than 4000] and exceeds 30000 conversely, the viscosity of a polyether system polymer will become high too much, and handling workability will worsen.

[0043] In addition, the thing whose number average molecular weight is 10000-30000 and whose molecular weight distribution (Mw/Mn) are 1.6 or less has the good handling workability of a polyether system polymer, and since the extensibility of the hardened material of the room-temperature-curing nature constituent obtained is also excellent, the above-mentioned polyether system polymer has it. [desirable]

[0044] Especially as an example of the above-mentioned polyether system polymer, although not limited, the trade name "MS polymer" series by Kaneka Corp., trade name "SAIRIRU" series, the trade name "EKUSE star" series by Asahi Glass Co., Ltd., etc. are mentioned, and it is used suitably, for example. The above-mentioned polyether system polymer may be used independently, and two or more kinds may be used together.

[0045] Since the weatherability of the room-temperature-curing nature constituent obtained by using together with the polyether system polymer of independent or others the polyether system polymer which has the hydrolysis nature silyl radical containing an acrylic radical for which a bridge can be constructed at least one end, and using it for it also in the various above-mentioned polyether system polymers improves, it becomes possible to be hard coming to generate a crack on the front face of hardened materials, such as a sealing material, and to prevent the surface contamination accompanying crack initiation, and a poor appearance. Moreover, in order that the residual tucks on the front face of a hardened material of a room-temperature-curing nature constituent may decrease in number, it becomes possible for a pollutant to stop being able to adhere easily and to control contamination of front faces, such as a sealing material, with time much more.

[0046] As a silanol condensation catalyst contained in the room-temperature-curing nature constituent by the 1st invention thru/ or the 5th invention Although not limited especially, for example Tetraethyl titanate, Titanate, such as tetra-propyl titanate; A dibutyl tin JIRAU rate, Dibutyl tin dimaleate, dibutyl tin diacetate, tin octylate, tin carboxylate [such as naphthenic-acid tin, ] -- resultant [of dibutyl tin oxide and phthalic ester, ] -- dibutyl tin diacetyl -- acetonate; -- aluminum tris acetylacetonate -- Organosilicon compounds, such as aluminum tri ethyl acetoacetate and JUSOPUROPOKISHI aluminum ethyl acetoacetate; Zirconium tetra-acetylacetonate, Chelate compounds, such as titanium tetra-acetylacetonate; as silanol condensation catalysts, such as lead octylate, conventionally, a well-known acid catalyst or a well-known basic catalyst etc. is mentioned, and it is used suitably.

[0047] The above-mentioned silanol condensation catalyst may be used independently, and two or more kinds may be used together. Although especially the content of the above-mentioned silanol condensation catalyst over a polyether system polymer is not limited, it is desirable that they are the silanol condensation catalyst 0.1 - 5 weight sections to the polyether system polymer 100 weight section, and it is 0.5 - 3 weight section more preferably.

[0048] If sufficient hardening facilitatory effect cannot be acquired if the content of the silanol

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material demonstrates the outstanding weatherability and the outstanding physical properties, the front face has a moderate hydrophilic property. Therefore, it is suitable for obtaining the sealing material which has the physical properties which the hardened material front face had generating [little] contamination with time, and were excellent in it.

[0059] Moreover, the room-temperature-curing nature constituent of the 2nd invention uses the above-mentioned polyether system polymer as a principal component, and since it comes to contain the amount of specification of the fatty acid ester of the polyglycerin which has polymerization degree in the specific range, while a hardened material demonstrates the outstanding weatherability and the outstanding physical properties, the front face has a moderate hydrophilic property. Therefore, it is suitable for obtaining the sealing material which has the physical properties which the hardened material front face had generating [little] contamination with time, and were excellent in it.

[0060] Furthermore, the room-temperature-curing nature constituent of the 3rd invention uses the above-mentioned polyether system polymer as a principal component, and since it comes to contain the amount of specification of the nonionic surfactant which has the melting point in the specific range, while a hardened material demonstrates the outstanding weatherability and the outstanding physical properties, the front face has a moderate hydrophilic property. Therefore, it is suitable for obtaining the sealing material which has the physical properties which the hardened material front face had generating [little] contamination with time, and were excellent in it.

[0061] Furthermore, since the acrylic ester (meta) system polymer is added, the weatherability of the room-temperature-curing nature constituent of the 4th invention of a hardened material improves. Surface photodegradation is suppressed by this and it is hard coming to set a surface detailed crack. Therefore, the increment in the area to which dirt adheres is suppressed, and antifouling property improves.

[0062] Furthermore, since the flattening agent with a mean particle diameter of 10 micrometers - 80 micrometers is added, the so-called "seesaw" does not occur but the room-temperature-curing nature constituent of the 5th invention can give moderate glossiness.

[0063]

[Embodiment of the Invention] Although an example is given to below in order to explain this invention in more detail, this invention is not limited to these examples. In addition, the "section" in an example means the "weight section."

[0064] (Example 1)

As a preparation polyether system polymer of a room-temperature-curing nature constituent, (1) The trade name "MS polymer S203" (number-average-molecular-weight 10000-20000, Kaneka Corp. make) 100 section, As an amine compound, the CH317(CH2) NH(CH2)3 NH2 2 (melting point of 48 degrees C) section, the calcium-carbonate (trade name "CCR" Showa industrial company make) 100 section and titanium oxide (a trade name "TIPAQUE CR-90" --) After carrying out stirring mixing at homogeneity with the agitator which sealed the 20 by Ishihara Sangyo Kaisha, Ltd. section, and the polypropylene-glycol (trade name "EKUSE Norian 3020", Asahi Glass Co., Ltd. make) 60 section, heating dehydration was carried out under reduced pressure for 110 degrees C - 2 hours. Subsequently, after cooling to 30 degrees C, the dibutyl tin JIRAU rate 2 section was added as the vinyl methoxysilane 3 section, the N-aminoethyl-aminopropyl-trimethoxysilane 2 section, and a silanol condensation catalyst, stirring mixing was carried out at homogeneity, and the room-temperature-curing nature constituent was obtained.

[0065] (2) The following approaches estimated the engine performance (surface contamination nature, elongation percentage) of the room-temperature-curing nature constituent obtained by the assessment above. The result was as being shown in a table 2.

[0066] Surface-contamination nature: After stiffening a room-temperature-curing nature constituent in the shape of a sheet, the outdoor exposure was carried out on the 30 south face square, whenever [lowering / of L value three months / to initial ERUSUTA (L value) / after an outdoor exposure] was measured, and surface contamination nature was evaluated in accordance with the criterion shown in the following table 1.

[0067]

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[0094] The polyether system polymer (trade name by Kaneka Corp. "MS polymer S-203") 80 weight section, (Example 14) The acrylic ester copolymer 20 weight section and the sorbitan SUTERETO 2 weight section, (Meta) The calcium-carbonate 100 weight section, the titanium oxide 20 weight section, and the polypropylene-glycol 60 weight section are added. After mixing to homogeneity with the sealed agitator, heating, decompressing at 110 degrees C for 2 hours and dehydrating mixture, further after cooling to 30 degrees C The vinyl methoxysilane 3 weight section, Mixture was made to distribute the aminomethyl aminopropyl trimethoxysilane 2 weight section and the dibutyl tin JIRAU rate 2 weight section to homogeneity. The shape of a sheet with a thickness of 3mm was made to carry out shaping hardening of the obtained mixture, and physical-properties assessment was performed.

[0095] (Example 15) The room-temperature-curing nature constituent was adjusted like the example 1 except having made sorbitan SUTERETO into 5 weight sections.

[0096] (Example 16) sorbitan SUTERETO — replacing with — glycerol monostearate 2 weight \*\*\*\*\* — things — except adjusted the room-temperature-curing nature constituent like the example 1.

[0097] (Example 5 of a comparison) The room-temperature-curing nature constituent was adjusted like the example 1 except having not added sorbitan SUTERETO.

[0098] (Example 6 of a comparison) The room-temperature-curing nature constituent was adjusted like the example 1 except having not added an acrylic ester system polymer (meta).

[0099] (Example 7 of a comparison) Sorbitan SUTERETO was made into 5 weight sections, and the room-temperature-curing nature constituent was adjusted like the example 1 except having not added an acrylic ester (meta) system polymer.

[0100] (Example 8 of a comparison) It replaced with sorbitan SUTERETO and the room-temperature-curing nature constituent was adjusted like the example 1 except having not added glycerol monostearate 2 weight \*\*\*\*\* and an acrylic ester (meta) system polymer. The blending ratio of coal and the physical-properties assessment result of the room-temperature-curing nature constituent adjusted by examples 14-16 and the examples 5-8 of a comparison were shown in a table 4.

[0101]

[A table 4]

(配合単位：重量部)

	実 施 例				比 較 例			
	14	15	16	5	6	7	8	
MSポリマー S203	80	80	80	80	100	100	100	
(メタ) アクリル酸エステル	20	20	20	20	20	20	20	
リクマール S-300W	2	5	-	-	2	3	2	
リクマール S-100	-	-	2	-	-	-	-	
炭酸カルシウム (CCR)	100	100	100	100	100	100	100	
酸化チタン (タイベーク CR-90)	20	20	20	20	20	20	20	
ポリビニルアルコール (エタセノール3020)	60	60	60	60	60	60	60	
ビニルメトキシシラン	3	3	3	3	3	3	3	
アミノエチルアミノプロピルメトキシシラン	2	2	2	2	2	2	2	
ジブチル錫ジラウレート	2	2	2	2	2	2	2	
炭素黒 (A)	800	820	830	810	800	820	830	
総入量	1000	1000	1000	1000	1000	1000	1000	

(注1) MSポリマー S203：ポリエーテル系重合体 (数平均分子量1万~2万、4官能性エポキシ)  
 (注2) リクマール S-300W：ジブチルジラウレート (炭素黒分散剤)  
 (注3) リクマール S-100：グリセリンモノステアレート (炭素黒分散剤)

[0102] The room-temperature-curing nature constituent of the examples 14-16 by this invention does not almost have generating contamination on a hardened material front face outdoor-exposure months [ three months ] after a 30 south face angle, and the elongation percentage of a hardened material was also excellent so that clearly from a table 4.

[0103] On the other hand, hardened material surface endurance was inferior in the room-temperature-curing nature constituent of the examples 5-8 of a comparison which did not make an acrylic ester (meta) system polymer contain outdoor-exposure months [ three months ] after the 30 south face angle.

[0104]

[Effect of the Invention] As stated above, the room-temperature-curing nature constituent of claim 1 thru/or claim 4 has generating [ little ] contamination with time on a hardened material front face, without using a surface protective agent, and since after hardening demonstrates the outstanding physical properties, it is used suitable for various applications as a sealing material, adhesives, etc. According to the room-temperature-curing nature constituent of claim 5, it can consider as the condition (condition out of which the so-called "\*\*\*\*\*" does not come) that luster came out moderately, without carrying out coating of the mat paint, and the adhesives which do not give a feeling of a cheap article can be obtained.

[Translation done.]